

REMARKS/ARGUMENT

This second Preliminary Amendment is being submitted to conform the claims to be consistent with the amendments set forth in the reexamination certificate.

Applicant respectfully submits that the claimed invention is allowable as recited in the amended patent claims.

Allowance of the instant reissue application is courteously solicited.

Respectfully submitted,



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APPENDIX A
VERSION WITH MARKINGS TO SHOW NEW CHANGES

CLAIMS:

1. (Amended) A sprinkler [having] comprising:
a rotatable nozzle housing having a water passage formed therein;
an output shaft mechanically connected to said rotatable nozzle housing for rotating said
nozzle housing;[.]

5 a manually adjustable rotatable sleeve having an inner surface and a plurality of
circumferentially spaced [orifices] nozzles, each of said nozzles having mutually different
configurations from each other;[;]said rotatable sleeve [is] being slidably installed around the
nozzle housing and being in rotational relationship therewith and thereto so that said rotatable
sleeve can be selectively positioned to align one of said plurality of nozzles with the discharge end
of the water passage for distributing water outwardly from said sprinkler; and

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[[sealing means surrounding the discharge end of [a] the water passage formed in said nozzle
housing[;]said sealing means including]] a seal [[member]] surrounding the discharge end of the
water passage and dimensioned to continuously bear against said inner surface of said rotatable
sleeve to provide a sealed connection to the pressurized water passage of the nozzle housing;

15 [, wherein said rotatable sleeve is can be selectively positioned to align one of said plurality of
orifices with said discharge end of the water passage for distributing water outwardly from said
sprinkler,] [[and means for retaining said [nozzle selection] rotatable sleeve in place]].

2. (Canceled) ✓

3. (Canceled) ✓

A 2
4. (Amended) A sprinkler as claimed in claim [3] 1, wherein said [[sealing means]] seal is an
"O" ring.

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9. A sprinkler as set forth in claim [3] 1, wherein said rotatable nozzle housing includes indicia on the top indicating the location of each orifice of said plurality of orifices and/or its flow characteristic.

12. (Amended) A sprinkler [[having]] comprising:

a rotatable nozzle housing having a water passage formed therein and a central axis about which said rotatable nozzle housing rotates; and

5 a [[relatively flat]] nozzle plate having [[a front side, a back side, a top edge, a bottom edge and opposing side edges;]] at least one orifice disposed in said nozzle plate [[aligning]] to be aligned with [[a]] the water passage formed in said rotatable nozzle housing for discharging water from the side of said rotatable nozzle housing at a given characteristic,

10 said nozzle plate slidably fitting into a complementary groove formed into said water passage in said rotatable nozzle housing [[and disposed generally parallel to said central axis, said front side having]] so that a planar surface of said nozzle plate can be sealed to the water passage by [[facing the discharge end of said water passage, sealing means surrounding said discharge end of said water passage formed in said nozzle housing; said sealing means including]]
15 a seal member surrounding [[the discharge end of]] the water passage and dimensioned to continuously bear against said planar surface to provide a sealed connection to the pressurized water passage of the nozzle housing, [[means on the top edge of]]

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15 wherein said nozzle plate is accessible from the top of said rotatable nozzle housing [[wherein said nozzle plate is]] so as to be removable while said sprinkler is operational for insertion of [[other]] another nozzle [[plates with different orifices]] plate having at least one orifice and having different flow characteristics from those of the removed nozzle plate.

13. (Amended) A sprinkler as claimed in claim 12, wherein said seal member is an "O" ring.

14. (Amended) A sprinkler as claimed in claim 12, including a tapered recess formed at one end of said groove and a mating tapered portion formed on said [[bottom edge and said back side]] nozzle plate to urge said nozzle plate against said seal member.

15. (Amended) A sprinkler as claimed in claim 12, including a riser operatively connected to said rotatable nozzle housing, said riser and said nozzle housing being cylindrically shaped and the outer diameter of said riser and the outer diameter of said nozzle housing being substantially equal.

16. A water sprinkler [having] comprising:

a riser assembly[,]

a drive shaft extending from the top of said riser assembly[,]

a nozzle housing assembly[, said nozzle housing assembly] having

5 a housing connected to said drive shaft for rotation therewith, [said nozzle housing assembly having]

a cylindrical outer surface, and

a flow passage formed therein which has an exit at said cylindrical outer surface; and

a cylindrical nozzle selection sleeve [being] mounted over the outer surface of said housing

10 to rotate therewith and being manually [rotated] rotatable relative to said housing, said nozzle

selection sleeve having a sleeve wall with a multiplicity of individual nozzles spaced therearound,

[said housing having a flow passage therein with an exit at said cylindrical outer surface,] said

individual nozzles having mutually different configurations from each other to produce respectively different flow characteristics and being positioned on said sleeve wall so that each nozzle becomes

15 aligned with said flow passage exit as the nozzle selection sleeve is rotated.

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17. (Amended) A water sprinkler as claimed in claim 16, wherein each of said individual nozzles includes a sharp edged orifice formed therein in the process of molding the nozzle selection sleeve.

18. (Amended) A water sprinkler as claimed in claim 16, further including [[sealing means]] a seal surrounding said flow passage exit to provide a sealed connection [to] between the nozzle housing and the selection sleeve around the pressurized [water] flow passage of the nozzle housing to prevent water exiting the flow passage and through the nozzle aligned with the flow passage exit from leaking.

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19. (Amended) A water sprinkler as claimed in claim 18, wherein said [[sealing means]] seal includes an "O" ring.

20. A sprinkler as claimed in claim 1, wherein the rotatable sleeve is removably installed on the nozzle housing.

21. A water sprinkler as claimed in claim 16, wherein the nozzle selection sleeve is slidably removable from said housing.

22. (New) A sprinkler comprising:

a riser assembly;

a rotatable nozzle housing having a flow passage formed therein for discharging water therefrom;

5 a drive shaft extending from the riser assembly and connected to the nozzle housing for rotating the nozzle housing relative to the riser assembly; and

at least one selectable nozzle arrangement for aligning one of a plurality of nozzle orifices with the flow passage to distribute water from the sprinkler according to desired flow characteristics, wherein the plurality of nozzle orifices are each configured mutually differently to provide different flow characteristics, and wherein a selected one of the plurality of nozzle orifices to be aligned with the flow passage can be changed while the sprinkler is operational.

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10 23. (New) The sprinkler according to claim 22, wherein the at least one selectable nozzle arrangement includes at least one nozzle plate each having at least one orifice disposed therein.

5 24. (New) The sprinkler according to claim 23, wherein the nozzle housing has a groove formed therein, whereby a nozzle plate can be slidably fitted into the groove and accessed from the top of the nozzle housing so as to be mountable in the nozzle housing while the sprinkler is operational and similarly removable therefrom for insertion of another nozzle plate having another of the plurality of differently configured nozzle orifices.

25. (New) The sprinkler according to claim 23, wherein each nozzle plate is mountable in the nozzle housing so as to intersect the flow passage to align the selected one of the differently

configured nozzle orifices with the flow passage, whereby a pressurized flow of water flowing through the flow passage is forced through the selected nozzle orifice to achieve the desired flow characteristics.

26. (New) The sprinkler according to claim 23, wherein the at least one nozzle plate includes a nozzle plate having an insertable nozzle inserted into the plate.

27. (New) The sprinkler according to claim 22, wherein the at least one selectable nozzle arrangement includes a nozzle sleeve mountable around and dismountable from the rotatable nozzle housing, the nozzle sleeve being rotatable relative to the rotatable nozzle housing and having the plurality of nozzle orifices formed therein.

28. (New) The sprinkler according to claim 22, wherein the selectable nozzle arrangement is removable from the sprinkler housing while the sprinkler is operational so as to be exchangeable.

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29. (New) A sprinkler comprising:
a riser assembly;
a rotatable nozzle housing having a flow passage formed therein for discharging water
therefrom;

5 a drive shaft extending from the riser assembly and connected to the nozzle housing for
rotating the nozzle housing relative to the riser assembly; and

a nozzle plate including a selected orifice therein to be aligned with the flow passage for
discharging water from the rotatable nozzle housing according to a desired flow characteristic.

30. (New) The sprinkler according to claim 29, wherein the nozzle plate is fitted into a
complementary opening formed in the rotatable nozzle housing to intersect the flow passage to force
a pressurized water flow through the selected orifice to provide a desired precipitation rate for a
desired arc of coverage.

APPENDIX B
COMPLETE SET OF CLAIMS AS
WOULD APPEAR IN REISSUED PATENT

CLAIMS (with indication of amended or new):

1. (Amended) A sprinkler [having] comprising:

a rotatable nozzle housing having a water passage formed therein;

an output shaft mechanically connected to said rotatable nozzle housing for rotating said nozzle housing;[,]

5 a manually adjustable rotatable sleeve having an inner surface and a plurality of circumferentially spaced [orifices] nozzles, each of said nozzles having mutually different configurations from each other;[;] said rotatable sleeve [is] being slidably installed around the nozzle housing and being in rotational relationship therewith and thereto so that said rotatable sleeve can be selectively positioned to align one of said plurality of nozzles with the discharge end of the water passage for distributing water outwardly from said sprinkler; and

10 [[sealing means surrounding the discharge end of [a] the water passage formed in said nozzle housing[;] said sealing means including]] a seal [[member]] surrounding the discharge end of the water passage and dimensioned to continuously bear against said inner surface of said rotatable sleeve to provide a sealed connection to the pressurized water passage of the nozzle housing;[, wherein said rotatable sleeve is can be selectively positioned to align one of said plurality of orifices with said discharge end of the water passage for distributing water outwardly from said sprinkler,] [[and means for retaining said [nozzle selection] rotatable sleeve in place]].

15 4. (Amended) A sprinkler as claimed in claim [3] 1, wherein said [[sealing means]] seal is an "O" ring.

5. A sprinkler as claimed in claim [3] 1, wherein said rotatable nozzle housing is cylindrical and includes an outer surface, and said [separate] rotatable sleeve is dimensioned so that the outer diameter thereof is substantially equal to the outer diameter of said outer surface of said rotatable nozzle housing.

6. A sprinkler as claimed in claim [3] 1, wherein a portion of said [separate] rotatable sleeve is blank, and wherein [so that] said [separate] rotatable sleeve [is] can be selectively positioned so that said blank portion overlies said discharge end of said water passage whereby said sprinkler is capable of being turned off without turning off the water supply.

7. A sprinkler as claimed in claim 6, wherein said rotatable nozzle housing includes a reduced diameter surface, said inner [diameter] surface of said rotatable sleeve being in slidable relationship with said reduced diameter surface of said rotatable nozzle housing.

8. A sprinkler as claimed in [claims] claim 7, further comprising [including] a riser assembly operatively connected to said rotatable nozzle housing, said riser assembly including a cylindrical member having an outer diameter, the outer diameter of said [separate] rotatable sleeve being substantially equal to the diameter of said outer diameter of said cylindrical member.

9. A sprinkler as set forth in claim [3] 1, wherein said rotatable nozzle housing includes indicia on the top indicating the location of each orifice of said plurality of orifices and/or its flow characteristic.

10. A sprinkler as claimed in claim [3] 1, wherein said [separate] rotatable sleeve is slidably installed from the top of said sprinkler.

11. A sprinkler as claimed in claim 1, wherein said nozzle housing further includes an outer surface, and

gripping means formed on said outer surface to hold said nozzle housing from rotating when said sleeve is rotated.

12. (Amended) A sprinkler [[having]] comprising:

a rotatable nozzle housing having a water passage formed therein and a central axis about which said rotatable nozzle housing rotates; and

5 a [[relatively flat]] nozzle plate having [[a front side, a back side, a top edge, a bottom edge and opposing side edges;]] at least one orifice disposed in said nozzle plate [[aligning]] to be

aligned with [[a]] the water passage formed in said rotatable nozzle housing for discharging water from the side of said rotatable nozzle housing at a given characteristic,

10 said nozzle plate slidably fitting into a complementary groove formed into said water passage in said rotatable nozzle housing [[and disposed generally parallel to said central axis, said front side having]] so that a planar surface of said nozzle plate can be sealed to the water passage by [[facing the discharge end of said water passage, sealing means surrounding said discharge end of said water passage formed in said nozzle housing; said sealing means including]]
15 a seal member surrounding [[the discharge end of]] the water passage and dimensioned to continuously bear against said planar surface to provide a sealed connection to the pressurized water passage of the nozzle housing, [[means on the top edge of]]

wherein said nozzle plate is accessible from the top of said rotatable nozzle housing [[wherein said nozzle plate is]] so as to be removable while said sprinkler is operational for insertion of [[other]] another nozzle [[plates with different orifices]] plate having at least one orifice and having different flow characteristics from those of the removed nozzle plate.

13. (Amended) A sprinkler as claimed in claim 12, wherein said seal member is an "O" ring.

14. (Amended) A sprinkler as claimed in claim 12, including a tapered recess formed at one end of said groove and a mating tapered portion formed on said [[bottom edge and said back side]] nozzle plate to urge said nozzle plate against said seal member.

15. (Amended) A sprinkler as claimed in claim 12, including a riser operatively connected to said rotatable nozzle housing, said riser and said nozzle housing being cylindrically shaped and the outer diameter of said riser and the outer diameter of said nozzle housing being substantially equal.

16. A water sprinkler [having] comprising:

a riser assembly;[,]

a drive shaft extending from the top of said riser assembly;[,]

a nozzle housing assembly[, said nozzle housing assembly] having

5 a housing connected to said drive shaft for rotation therewith, [said nozzle housing assembly having]

a cylindrical outer surface, and

a flow passage formed therein which has an exit at said cylindrical outer surface; and

10 a cylindrical nozzle selection sleeve [being] mounted over the outer surface of said housing to rotate therewith and being manually [rotated] rotatable relative to said housing, said nozzle selection sleeve having a sleeve wall with a multiplicity of individual nozzles spaced therearound, [said housing having a flow passage therein with an exit at said cylindrical outer surface,] said individual nozzles having mutually different configurations from each other to produce respectively different flow characteristics and being positioned on said sleeve wall so that each nozzle becomes
15 aligned with said flow passage exit as the nozzle selection sleeve is rotated.

17. (Amended) A water sprinkler as claimed in claim 16, wherein each of said individual nozzles includes a sharp edged orifice formed therein in the process of molding the nozzle selection sleeve.

18. (Amended) A water sprinkler as claimed in claim 16, further including [[sealing means]] a seal surrounding said flow passage exit to provide a sealed connection [to] between the nozzle housing and the selection sleeve around the pressurized [water] flow passage of the nozzle housing to prevent water exiting the flow passage and through the nozzle aligned with the flow passage exit from leaking.

19. (Amended) A water sprinkler as claimed in claim 18, wherein said [[sealing means]] seal includes an "O" ring.

20. A sprinkler as claimed in claim 1, wherein the rotatable sleeve is removably installed on the nozzle housing.

21. A water sprinkler as claimed in claim 16, wherein the nozzle selection sleeve is slidably removable from said housing.

22. (New) A sprinkler comprising:

a riser assembly;

a rotatable nozzle housing having a flow passage formed therein for discharging water
therefrom;

5 a drive shaft extending from the riser assembly and connected to the nozzle housing for
rotating the nozzle housing relative to the riser assembly; and

10 at least one selectable nozzle arrangement for aligning one of a plurality of nozzle orifices
with the flow passage to distribute water from the sprinkler according to desired flow
characteristics, wherein the plurality of nozzle orifices are each configured mutually differently to
provide different flow characteristics, and wherein a selected one of the plurality of nozzle orifices
to be aligned with the flow passage can be changed while the sprinkler is operational.

23. (New) The sprinkler according to claim 22, wherein the at least one selectable nozzle
arrangement includes at least one nozzle plate each having at least one orifice disposed therein.

5 24. (New) The sprinkler according to claim 23, wherein the nozzle housing has a groove
formed therein, whereby a nozzle plate can be slidably fitted into the groove and accessed from the
top of the nozzle housing so as to be mountable in the nozzle housing while the sprinkler is
operational and similarly removable therefrom for insertion of another nozzle plate having another
of the plurality of differently configured nozzle orifices.

5 25. (New) The sprinkler according to claim 23, wherein each nozzle plate is mountable in
the nozzle housing so as to intersect the flow passage to align the selected one of the differently
configured nozzle orifices with the flow passage, whereby a pressurized flow of water flowing
through the flow passage is forced through the selected nozzle orifice to achieve the desired flow
characteristics.

26. (New) The sprinkler according to claim 23, wherein the at least one nozzle plate
includes a nozzle plate having an insertable nozzle inserted into the plate.

27. (New) The sprinkler according to claim 22, wherein the at least one selectable nozzle
arrangement includes a nozzle sleeve mountable around and dismountable from the rotatable nozzle

housing, the nozzle sleeve being rotatable relative to the rotatable nozzle housing and having the plurality of nozzle orifices formed therein.

28. (New) The sprinkler according to claim 22, wherein the selectable nozzle arrangement is removable from the sprinkler housing while the sprinkler is operational so as to be exchangeable.

29. (New) A sprinkler comprising:

a riser assembly;

a rotatable nozzle housing having a flow passage formed therein for discharging water therefrom;

5 a drive shaft extending from the riser assembly and connected to the nozzle housing for rotating the nozzle housing relative to the riser assembly; and

a nozzle plate including a selected orifice therein to be aligned with the flow passage for discharging water from the rotatable nozzle housing according to a desired flow characteristic.

30. (New) The sprinkler according to claim 29, wherein the nozzle plate is fitted into a complementary opening formed in the rotatable nozzle housing to intersect the flow passage to force a pressurized water flow through the selected orifice to provide a desired precipitation rate for a desired arc of coverage.